

Work Order ID 137030

137030

Page 1

Wednesday, September 23, 2015 10:28:25 A

Item ID: D412-664-209TRN

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Turning Detail

Start Date: 9/23/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/23/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: MLS

Date: SEP 23 2015 Tooling:

Date:

Run Start *NR1*

QC:

Date: SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D412-664-249	C

100

0.00

100

MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA708

2-Turn first side as per Folio FA708

3- File transition lines smooth.

FOLIO REV: AI

DWG REV: C

1 ϕ mm
16/02/29

110

0.00

110

QC1- Inspection performed by CMM

QC

Memo

0.00

Quality Control

QC
6/6/15

1 ϕ mm
16/03/01

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																
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Wednesday, September 23, 2015 10:28:25 A

Item ID: D412-664-209TRN

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Crosstube Turning Detail

Stop *NS2*

Start Date: 9/23/2015 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 9/23/2015 **Req'd Qty:** 1.00 ***1***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120

0.00

120

MORI SEIKI CNC LATHE LARGE

0.00

Mori Seiki

Memo

Mori Seiki CNC Lathe Large

- 1-Turn second side as per Folio FA708
- 2- File transition lines smooth.
- 3- Remove sand and plugs
- 4-Scribe part # and batch # using vibrating stylus as per Dwg D412-664-

Inside of Cuff(Donot engrave on outside of tube)

FOLIO REV: AA

DWG REV: 5

130

~~QCI-~~ Inspection performed by CMM

0.00

130

OC

OC2
8/6/01/19 Memo

0.00

Quality Control

mmml
16/03/0

mmL
16/03/0

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Work Order ID 137030

137030

Page 3

Wednesday, September 23, 2015 10:28:25 A

Item ID: D412-664-209TRN Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Crosstube Turning Detail
Start Date: 9/23/2015 Start Qty: 1.00 *1* Cust Item ID:
Required Date: 9/23/2015 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC8- Inspect parts - second check	0.00				1	0		47
140									9-89
QC	Memo	0.00							
Quality Control								16-03-02	
145		0.00				BC			
145								16/03/04	
Crosstubes	Memo	0.00							
Crosstubes	Grind machining mark longitude								
150		0.00				BC			
150								6/03/08	
HandFXtube	Memo	0.00							
Hand Finishing Crosstubes	1- PRESSURE WASH X-TUBE INSIDE AND OUT								
	2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
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Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : ☐			

Work Order ID 137030

Wednesday, September 23, 2015 10:28:25 A

137030

Page 4

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 Revision ID: Stop ***NS2***
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 Start Date: 9/23/2015 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 9/23/2015 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC7-Inspect Chemical Conversion Coat	0.00							
160									
QC	Memo	0.00							
Quality Control									16-03-08
170	Packaging	0.00							
170									
Packaging	Memo	0.00							
Packaging	Identify and stock in kanban rack Location: <u>LG14</u>								16/03/08
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.00							
Quality Control									MCS MAR 10 2016

MCS MAR 09 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____																							
Misidentified ☐	Past Due ☐																								

Picklist Print

Wednesday, September 23, 2015 10:28:28 AM

Page 1

Work Order ID: 137030

137030

Parent Item: D412-664-209TRN

D412-664-209TRN

Parent Item Name: Crosstube Turning Detail

Start Date: 9/23/2015

Required Date: 9/23/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 08-03-06 DD verified by:ec
IPP Rev B 08.04.02 Removed polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6009-129		Manufactured	No			110	Each	43.0670	1	1			

D6009-129

**

Crosstube Material

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG003	20.067	
107864	19.067	
107865	1	
SHED	23	
123972	23	

LG003

123974

19

1 mm L 16/02/29

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																															
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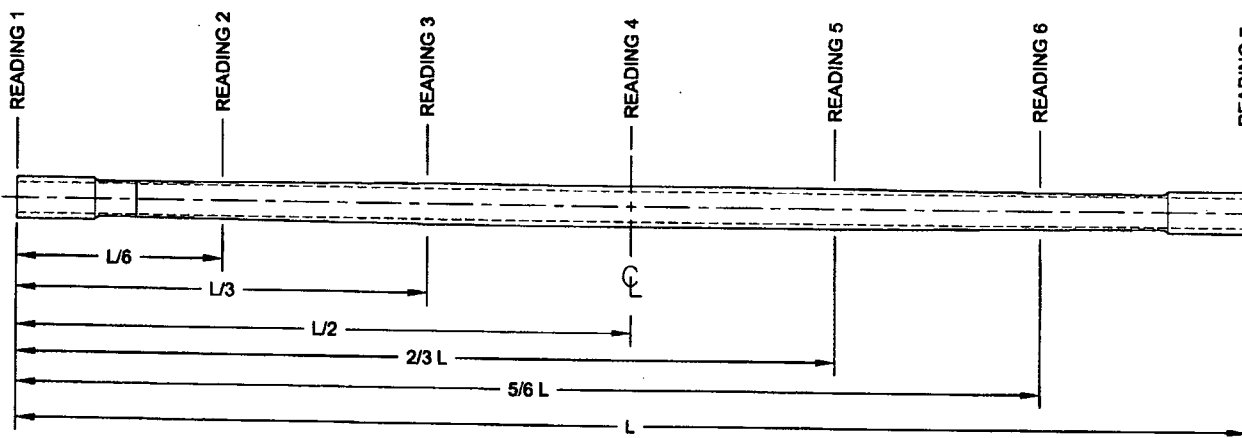
DART AEROSPACE LTD		Work Order:	137030
Description: Crosstube Assembly (412 Low Aft)		Part Number:	D412-664-249
Inspection Dwg: D412-664-249 Rev: C		Page 1 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.625	+/-0.010	.625	/		vern	CNC-08
	2.680	+0.005/-0.000	2.682	-			
	2.680	+0.005/-0.000	2.684	/			
	2.687	+0.005/-0.000	2.692	/			
	2.793	+0.005/-0.000	2.797	/			
	2.930	+0.005/-0.000	2.934	/			
	3.067	+0.005/-0.000	3.068	/			
	3.205	+0.005/-0.000	3.209	-			
	3.358	+0.005/-0.000	3.364	-			
	3.378	+0.005/-0.000	3.380	/			
	3.500	+0.005/-0.000	3.500	/			
SIDE B	0.625	+/-0.010	.625	/		vern	CNC-08
	2.680	+0.005/-0.000	2.684	-			
	2.680	+0.005/-0.000	2.685	-			
	2.687	+0.005/-0.000	2.692	-			
	2.793	+0.005/-0.000	2.798	/			
	2.930	+0.005/-0.000	2.935	/			
	3.067	+0.005/-0.000	3.071	/			
	3.205	+0.005/-0.000	3.210	/			
	3.358	+0.005/-0.000	3.361	/			
	3.378	+0.005/-0.000	3.380	/			
	3.500	+0.005/-0.000	3.500	-			
	0.127.82	+/-0.020	127.82	/		tape	

DART AEROSPACE LTD		Work Order: 137030
Description: Crosstube Assembly (412 Low Aft)		Part Number: D412-664-249
Inspection Dwg: D412-664-249 Rev: C		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.226	.223	.233	.230	.007	0.073"
READING 2 L= 21	.244	.242	.277	.272	.035	
READING 3 L= 43	.437	.427	.458	.469	.042	
READING 4 L= 64	.644	.631	.627	.632	.017	
READING 5 L= 85	.443	.432	.448	.455	.023	
READING 6 L= 107	.255	.236	.267	.278	.042	
READING 7 L= 127	.227	.213	.234	.231	.021	

Calibration Result

Actual Block Thickness: .100 .750

DAS 47 Sitescan 250 Measured Thickness: .100 .750

Measured by: mmf
Date: 16/03/01

Audited by: 9-89
Date: 16-03-01

Preliminary Approval:
Date:

Rev	Date	Change	Revised by	Approved
A	08.11.07	New Issue (P/O D212-664-209)	KJ/EC	
B	10.11.12	Dwg Rev updated	KJ	
C	12.06.04	Wall thickness form added	KJ	
D	15.04.14	Dwg Rev updated	KJ	

Item	Qty -249	Part Number	Description
1	X	D412-664-249	CROSSTUBE ASSEMBLY (412 LOW AFT)
2	1	D6009-129	CROSSTUBE
3	1	D2896-1	SUPPORT
4	2	D3189-1	CHAFING SHIELD
5	2	D3595-063-570	RUBBER CUSHION
6	2	D3660-1	CUFF
7	44	CR3212-4-07	RIVET (OR M7885/3-4-07)
8	4	MS21920-28	CLAMP
9	2	MS21920-30	CLAMP (OR MS21920-32)
10	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD
11	A/R	PROSEAL 890	SEALANT, MIL-S-8802 CLASS B2
12	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6009-129
FINISHED LENGTH = 127.828±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D412-664-249" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 42.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

TURNING

- 10) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.

BENDING

- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 12) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.

ASSEMBLY

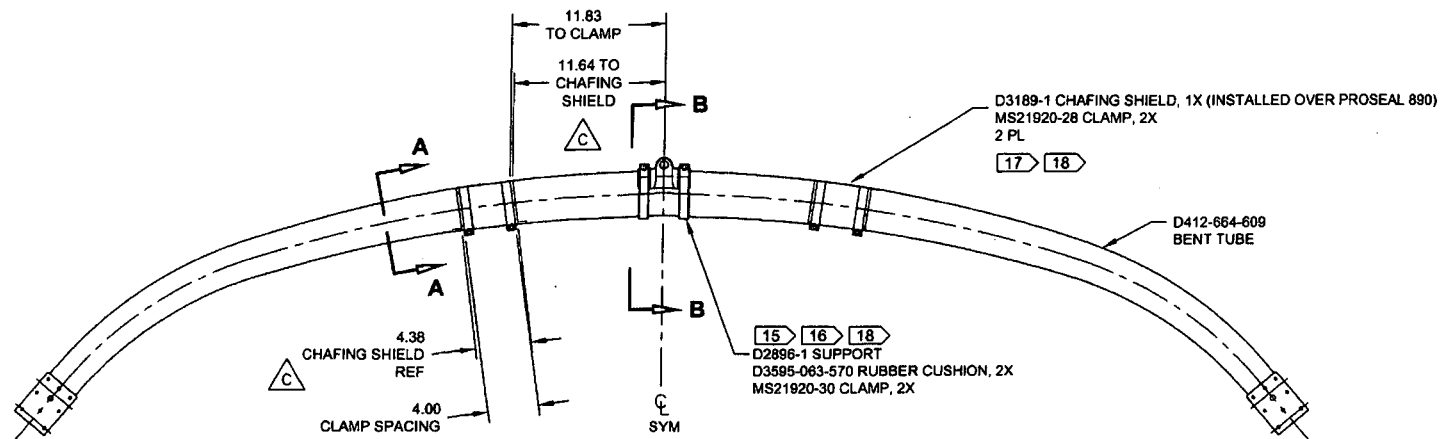
- 13) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT. WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 14) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.
- 15) INSTALL D2896-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015.
- 16) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE ON TOP SIDE OF CROSSTUBE.
- 17) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3189-1 CHAFING SHIELD ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.
- 18) TORQUE CLAMPS ON D2896-1 SUPPORT 80 TO 100 IN-LB. TORQUE CLAMPS ON D3189-1 CHAFING SHIELD 40 TO 50 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVES HAVE CURED FOR 24 HOURS.

137030 MWS
1509-23

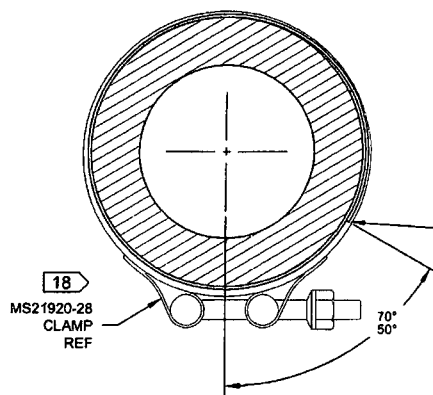
RELEASED
2014-05-26

C	NOTES RE-ORDERED, SCOTCH-WELD WAS MAGNOBOND (C8-1). ADD CLAMP RETORQUE (A8-1). REMOVE ABRASION STRIP, CHAFING SHIELD NOW 4.38 WIDE (C6-2). CLAMPS FLIPPED TO PREVENT CHAFING (B7-2). INCORP. DEO B-1/-2/-3	CP	14.04.01
B	REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS	RF	09.09.30
A	NEW ISSUE	CP	07.07.07
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	14.04.01		

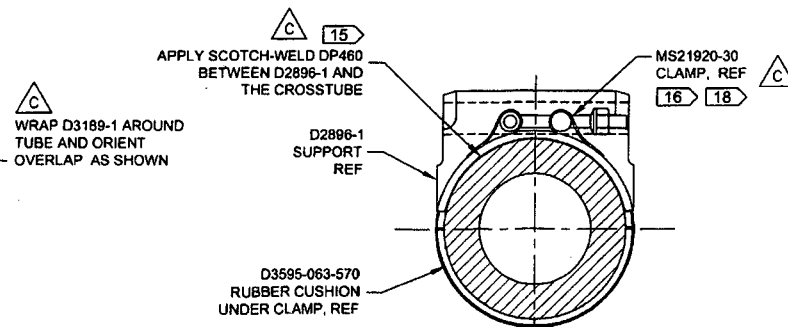
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D412-664-249	REV. C SHEET 1 OF 4
TITLE CROSSTUBE (412 LOW AFT)	SCALE NTS
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D412-664-249
ASSEMBLY DETAIL



SECTION A-A D6-2
SCALE 6X

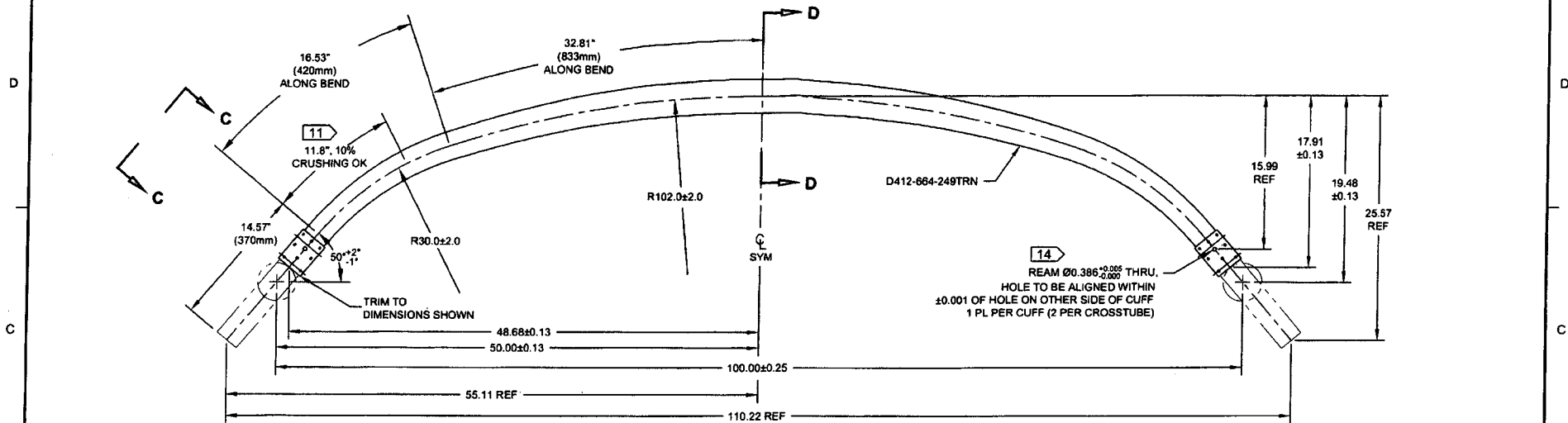


SECTION B-B
SCALE 4X

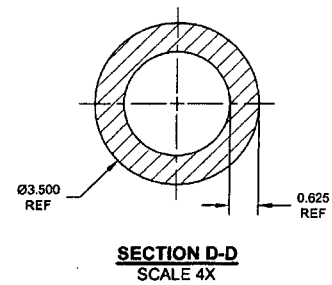
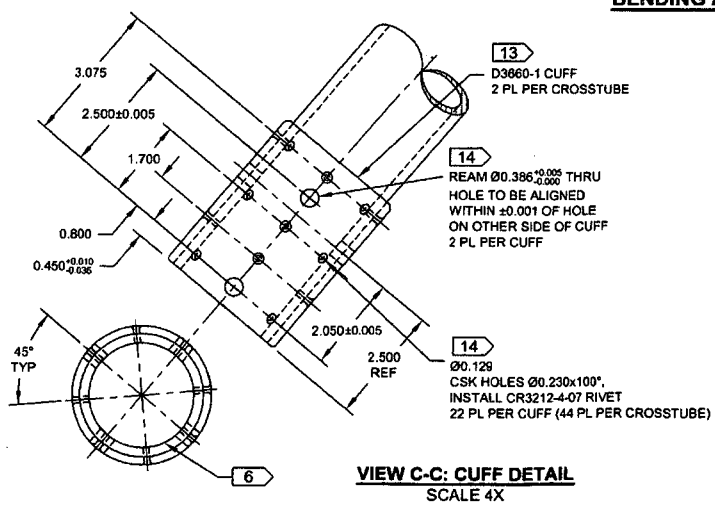
RELEASE
2014-05-26
MD

DESIGN	9	DART AEROSPACE LTD	
DRAWN	9	HAWKESBURY, ONTARIO, CANADA	
CHECKED	DL	DRAWING NO.	REV. C
MFG. APPR.		D412-664-249	SHEET 2 OF 4
APPROVED	MP	TITLE	SCALE
DE APPR.		CROSSTUBE (412 LOW AFT)	NTS
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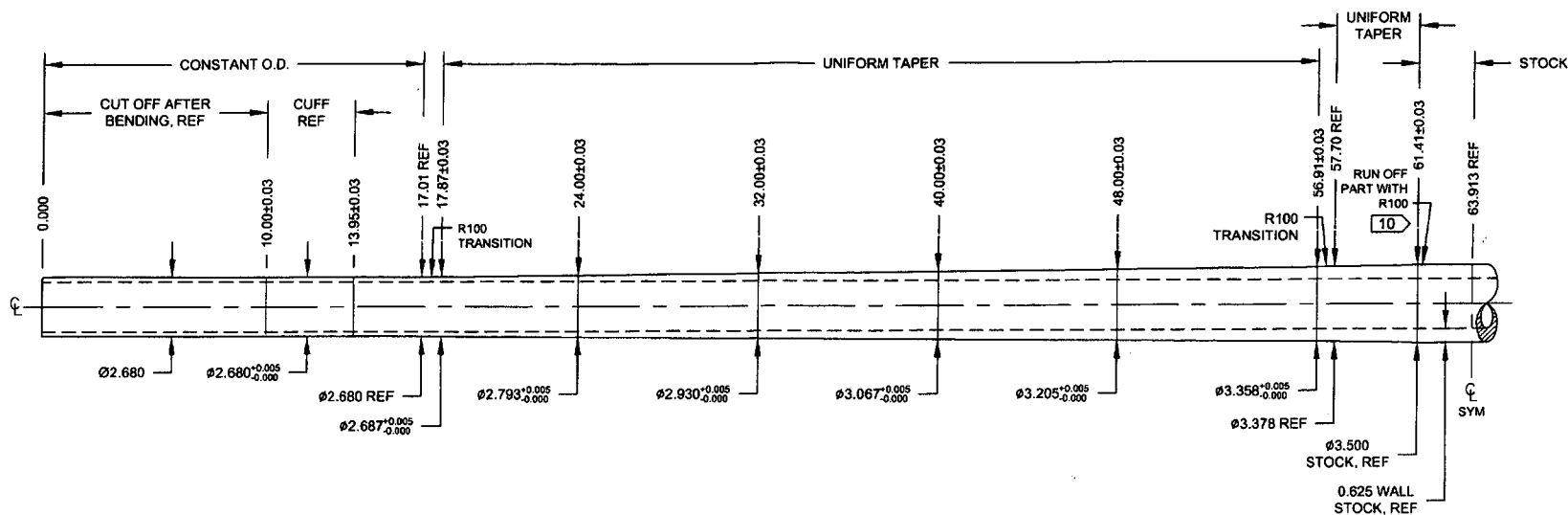
D412-664-609
BENDING AND DRILLING DETAIL 11



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2014-05-26
NW

DESIGN	Q	DART AEROSPACE LTD	
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CHECKED	W	DRAWING NO.	REV. C
MFG. APPR.	W	D412-664-249	SHEET 3 OF 4
APPROVED	W	TITLE	SCALE
DE APPR.	W	CROSSTUBE (412 LOW AFT)	NTS
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D412-664-249TRN
TURNING DETAIL

RELEASED
 2014-05-26

DESIGN	JP	DART AEROSPACE LTD	
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CHECKED	DL	DRAWING NO.	REV. C
MFG. APPR.	DL	D412-664-249	SHEET 4 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE (412 LOW AFT)	NTS
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